The People Who Make Organizations Go—or Stop

by Rob Cross and Laurence Prusak

Harvard Business Review

June 2002

The People Who Make Organizations Go – or Stop

The real work in most companies is done informally, through personal contacts. How can executives manage such amorphous networks? Start by focusing on those employees who play four critical linking roles.

by Rob Cross and Laurence Prusak

W E ' R E   A L L   F A M I L I A R with the truism "It's not what you know, it's who you know." Managers invariably use their personal contacts when they need to, say, meet an impossible deadline, get advice on a strategic decision, or learn the truth about a new boss. Increasingly, it's through these informal networks – not just through traditional organizational hierarchies – that information is found and work gets done. Social networks can be powerful political tools as well; few managers can resist the temptation to use their connections to discredit business initiatives they dislike or to support proposals they favor.

Most corporations, however, treat informal networks as an invisible enemy – one that keeps decisions from being made and work from getting done. To many senior executives, these intricate webs of communication are unobservable and ungovernable – and, therefore, not amenable to the tools of scientific management. As a result, executives tend to work around informal networks or, worse, try to ignore them. When they do acknowledge the networks' existence, executives fall back on intuition – scarcely a dependable tool – to guide them in nurturing this social capital.

It doesn't have to be that way. It is entirely possible to develop informal networks systematically. In fact, our research suggests that if senior managers focus their attention on a handful of key role-players in the group, the

effectiveness of any informal network can be enhanced. After analyzing informal networks at more than 50 large organizations over the past five years, we've identified four common role-players whose performance is critical to the productivity of any organization.

First, there are *central connectors,* who link most people in an informal network with one another. They aren't usually the formal leaders within a unit or department, but they know who can provide critical information or expertise that the entire network draws on to get work done. Then there are *boundary spanners,* who connect an informal network with other parts of the company or with similar networks in other organizations. They take the time to consult with and advise individuals from many different departments – marketing, production, or R&D, for instance – regardless of their own affiliations. *Information brokers* keep the different subgroups in an informal network together. If they didn't communicate across the subgroups, the network as a whole would splinter into smaller, less-effective segments. Finally, there are *peripheral specialists,* who anyone in an informal network can turn to for specialized expertise.

Despite the enormous influence these role-players wield within an organization, they are often invisible to senior managers. Because senior executives rely on gut feel, gossip, or formal reporting structures for their information about their managers and employees, they often misunderstand the links between people, especially in large and globally distributed corporations. And because there are so many informal networks in an organization, the problem is exacerbated. So the first step in managing informal networks is to bring them into the open. That can be done through a well-established technique called *social network analysis,* a graphical tool that maps out the relationships in an organization. (For an explanation of the tool and how it can be applied in business, see the sidebar "Who's Who?")

Once these network maps have been drawn, executives can start asking the right questions of the right people. Do the employees in one business unit have problems getting vital data from another business unit? Maybe that's because one of the central connectors in the informal network is hoarding information. Is the unit too isolated from other parts of the organization? Perhaps the boundary spanners aren't talking to the right people outside the group. Is the unit losing its technical expertise in a key area? It could be that a peripheral specialist needs to be drawn more closely into the network. In the following

---

Rob Cross is an assistant professor of management at the University of Virginia's McIntire School of Commerce in Charlottesville. Laurence Prusak is the executive director of the IBM Institute for Knowledge-Based Organizations in Cambridge, Massachusetts.

pages, we describe the four roles in detail and suggest ways that executives can transform ineffective informal networks into productive ones.

The Central Connector

The first person you notice when you look at a network map is the person everyone in the group talks to the most. Take a look at the exhibit "Finding Central Connectors and Peripheral Specialists," which depicts how the information flows in a global pharmaceutical company we consulted with. In this informal network, Alan is clearly the central information source for almost everyone in the network. The incoming arrows on the map indicate that Alan is the go-to person for most of his colleagues, even though Lisa is the head of the department.

In most cases, the central connectors are not the formally designated go-to people in the unit. For instance,

Who's Who?

Over the past two decades, much has been written about the role and importance of informal networks from a variety of academic perspectives including sociology, social psychology, anthropology, and epidemiology. Drawing on those disciplines, social scientists have developed and honed a powerful tool called *social network analysis,* a technique that lets users identify and map informal networks of people. In fact, David Krackhardt and Jeffrey R. Hanson wrote a detailed description of social network analysis in "Informal Networks: The Company Behind the Chart" (HBR July–August 1993), in which they argued that this tool could be logically applied to business. Indeed, some organizations are already using social network analysis to recognize and manage their informal networks.

Although it may be tempting for senior executives to map all the informal networks in a company at one go, this may be overkill. It is more effective if executives first identify the functions or activities where connectivity is most needed to improve productivity and

the information flows at one practice of a large technology consulting company we worked with depended almost entirely on five midlevel managers. They would, for instance, give their colleagues background information about key clients or offer ideas on new technologies that could be employed in a given project. These managers handled most technical questions themselves, and when they couldn't, they guided their colleagues to someone else in the informal network – regardless of functional area – who had the relevant expertise. Each of these central connectors spent an hour or more every day helping the other 108 people in the group. But while their colleagues readily acknowledged the connectors' importance, their efforts were not recognized, let alone rewarded, by the company. As a result, the connectors we spoke with were losing heart; they told us they were planning to focus more on work that top management was inclined to reward.

Therefore, it's important to explicitly recognize the connectors. Indeed, merely acknowledging their existence by showing them the network map, and their important role in it, gives central connectors considerable gratification. But longer term, companies need to set up tangible ways to reward the good citizenship of their connectors.

Some organizations offer spot rewards. For instance, there were few central connectors at a large engineering company we studied, so senior executives instituted a system of "above and beyond" rewards: Each time someone went out of his or her way to introduce a colleague in trouble to those who could help solve the problem, the connector was nominated for a cash reward. Although small, the bonus was paid out quickly and the effort was publicly acknowledged. This incentive helped create many more central connectors in the engineering company in a relatively short time.

---

then map the corresponding networks. These priority areas – say, the development of a new product line or the integration of a recent acquisition – normally follow from the company's strategic objectives.

The next step is to collect information from people to map sets of relationships within the priority areas. While those data can be obtained in various ways, from tracking e-mail to observing people, the most efficient way is to administer a ten-to-20-minute questionnaire. The questions asked will depend on the kind of network you want to uncover. In most companies, senior managers are most interested in assessing how information flows. For instance, they want to know "To whom do you talk regularly about work? From whom do you get your technical information? And from whom do you get your political information?" Some organizations map networks of trust ("Whom do you trust in this group to keep your best interests in mind?") or networks of energy ("When you interact with this person, how does it affect your energy level?"). Other organizations choose to map activities such as decision making ("To whom do you turn for advice before making an important decision?") or innovation ("With whom are you most likely to discuss a new idea?"). In short, the ability to map networks of relationships is virtually limitless and can be tailored to the needs of each organization.

The survey can be pretested on a small sample of employees to determine if they would respond positively or if the poll would be seen as an unwanted intrusion. Safeguards such as guaranteeing confidentiality and cross-checking responses can be built into the process to ensure that employees' privacy is protected and that they are answering honestly.

The information collected from the surveys is then used to create network maps that illustrate the relationships between the members of a group. Software programs are used to generate such maps since it is almost impossible to draw them by hand. Reading the maps is easy. Typically, each line on a network map indicates a link between two people, while the arrows show the direction of the relationship. In an information network, an incoming arrow indicates that someone is being sought out for information or advice, and an outgoing arrow signals that someone is seeking information or advice.

If an informal network has more than 50 members, it may be a good idea to focus on the subnetworks in the group. Subgroups form for a variety of reasons – formal reporting structures, political tensions, or physical locations – and can have a major impact on a network's performance. Executives must analyze why there are such splits in the informal network before planning their interventions.

Finally, it is essential to conduct interviews with the key role-players indicated in the map. Although the roles are reflected in the number and nature of interactions among members of the group, they cannot be simply read off a map: Sometimes a person plays more than one role in a network, and, often, that same person may play different roles in different networks.

Other organizations have changed aspects of their performance management systems to regularly reward central connectors. For instance, an investment bank we worked with changed the criteria for its annual bonuses: At the end of the review period, each manager's ability to link people in the bank was specifically evaluated by all the people with whom he or she worked. The most successful connectors (those who greatly improved employee communications, for instance) were awarded bigger bonuses than other managers were–a major departure from the schemes most investment banks follow, in which the managers who create the most profits get the biggest bonuses.

While most central connectors serve the company in a positive way, linking colleagues and increasing productivity, some end up creating bottlenecks that can hold back the informal network. Sometimes the connectors use their roles for political or financial gain; in other cases, they are just struggling to keep up with their own work while also fulfilling their roles in the network. Whatever the reason, it is not easy for the other members of the network to supplant an ineffective central connector because he or she is often the person around whom the network first formed. There may be little incentive for anyone else to take on this time-consuming role. Instead, the members of the network will keep buzzing around the central connector out of sheer habit – though, increasingly less often than they would like to.

A network map cannot tell you explicitly whether a central connector is creating a bottleneck. But if depart-

> While most central connectors serve the company in a positive way, linking colleagues and increasing productivity, some end up creating bottlenecks that can hold back the informal network.

ment members complain that their work suffers because of poor communication – citing, for instance, that they can't get information quickly enough to do their work – the organization's first task should be to get a sense of the personalities and workloads of the central connectors in that unit. Then, by using the network maps as the basis for a conversation, executives can, where necessary, coach connectors to improve their effectiveness and stop impeding the network.

In those cases where a central connector is consciously hoarding information or playing colleagues off one another, the solution usually involves altering the incentive systems that different departments or units use; conflicting reward systems can often cause such problems. Other organizational interventions, such as redesigning jobs and rotating people among different positions, can also help. At one government agency, a central connector was essentially pitting two subsets of the informal network against each other in order to enhance his own reputation in the agency. That is, the connector claimed success at integrating work between the two groups but wasn't helping the most relevant people from each subgroup connect on a given project. So the groups were not working as efficiently as they could have been. The organization decided to tackle this problem by changing the way it created project teams. Using information from a network analysis the company had conducted, executives carefully staffed new teams with members from both subsets of the informal network. That allowed members of both groups

Finding Central Connectors and Peripheral Specialists

Even though Lisa is the head of the department, Alan is considered the go-to person for information within this informal network. He plays the role of central connector. Meanwhile, Paul operates on the perimeter of the network, offering expertise to members of the group as it's needed, but not necessarily connecting with many other colleagues frequently. Paul plays the role of peripheral specialist.
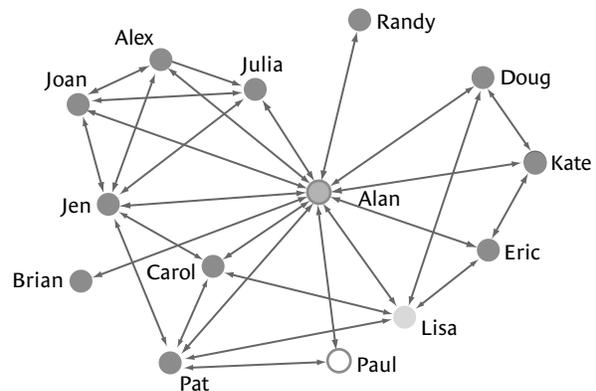
to work closely with one another and lowered the barriers among them. The central connector's stranglehold was broken even though he continued to play a key role in the informal network.

Power plays can happen, but more often, bottlenecks occur because the central connectors' jobs have grown too big for them, and they are struggling to keep up. They work at a frenetic pace and don't realize that they are slowing down others by not responding quickly enough to their colleagues or subordinates. In such cases, executives might intervene by reallocating responsibilities. For example, if a person is central to an informal network because of the depth of her knowledge in consulting or banking or software development, it may be a good idea to reassign some of her other work so that she can continue to focus on her area of expertise. Alternatively, if people are central only because they monitor information that many people need, it may be possible to make those data more widely available in other ways – for instance, using e-mail or a corporate intranet to disseminate information to everyone in the company.

We analyzed the communication flows among 200 globally dispersed professionals at a management consultancy. Two partners within the group were the central connectors, and nearly everyone in the network felt it necessary to communicate frequently with one or the other. As a result, the two were heavily overworked. Both would stay up well into the night to answer all the e-mail from their colleagues. Our network maps identified these overloaded central connectors, and changes were made to reduce the logjam. Some of the partners' work responsibilities, such as approving travel requests and reviewing all projects, were shifted to their colleagues, and several formal communication forums were created for trans-

mitting routine information. For instance, new policies were put in place that allowed people in the network to make their own decisions – within set limits – about expenditures for travel, equipment, or service ideas. And the consultancy encouraged broader participation in weekly operational conference calls.
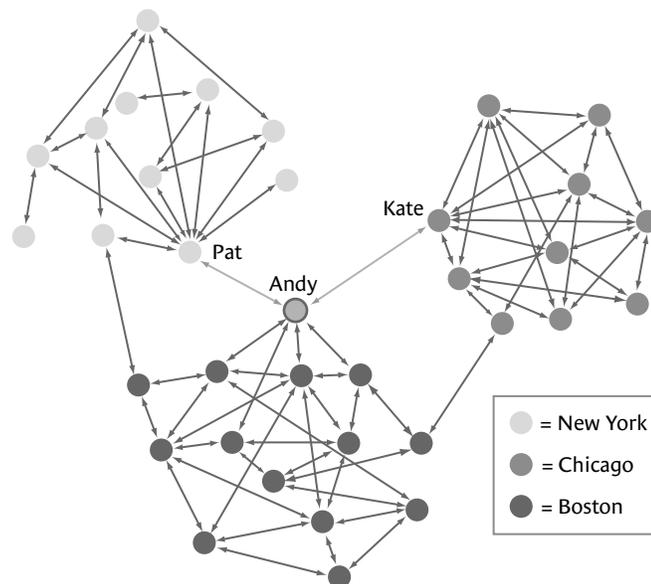
The Boundary Spanner

Every informal network has its roving ambassadors, people who serve as the group's eyes and ears in the wider world. These boundary spanners nurture connections mainly with people outside the informal network – for instance, they communicate with people in other departments within a company, at different satellite offices, and even in other organizations. As the exhibit "Spotting Boundary Spanners" indicates, Andy plays the role of a boundary spanner in an investment bank's informal network. Through his relationships with central connectors in two other informal networks, Andy serves as an efficient conduit of information; he puts most people in all the networks at less than four removes from one another.

Boundary spanners play an important role in those situations where people need to share different kinds of expertise – for instance, in establishing strategic alliances or developing new products. When we mapped the R&D department at a leading consumer-products company, we found that just four of the 36 researchers in the group maintained links with academics in their fields. These four boundary spanners were the sole sources of crucial knowledge for the entire team, and if any of them were to leave or be promoted out of R&D, the productivity of the entire group would have been hit hard.

Spotting Boundary Spanners

Because of his links to the central connectors in two other informal networks, Andy serves as the main conduit of information between the Boston network and groups in Chicago and New York. He plays the role of boundary spanner.

= New York
= Chicago
= Boston

Boundary spanners are a rare breed, however, and few networks have many of them. That's primarily because most people don't have the breadth of intellectual expertise, the wealth of social contacts, and the personality traits necessary to be accepted by vastly different groups. They may have one or two of these components but rarely have all. For instance, few marketing managers are welcomed into the heart of an R&D network, largely because the two groups value different aspects of their work.

Corporate life may not be particularly friendly to the boundary spanner, who has to spend a lot of time developing an external network. To do so, the spanner may take up projects and tasks that cut across formal boundaries in the company, and he or she may spend less time in the immediate network. If that kind of work is not welcomed by the organization, it could set back the spanner's career.

Senior executives can use network maps to check if their boundary spanners are making the right connections – particularly with central connectors in other groups. In our investment bank example, if Andy were connected to a peripheral specialist (who, by definition, is not central to the network and works apart from most colleagues) rather than to a central connector, the average degree of separation would rise in the network. It is hard for executives to legislate who boundary spanners should build relationships with, but senior managers can shape the spanners' networks in subtle ways. At one commercial bank we consulted with, midlevel managers were asked to set new product-development goals for themselves in conjunction with the senior executives in other units. The resulting planning meetings and projects prompted the formation of close informal relationships among people who served in different functions at different levels of the bank. This created many more boundary spanners in the bank, which is what top management wanted.

A company can reap substantial benefits by recognizing its boundary spanners. Take the case of the consumer goods practice of a global consulting firm we worked with. This group was distributed across different offices in North America, Europe, and Australia. Few consultants knew their counterparts in other countries, so coordination among the offices was poor. The firm saw a dramatic improvement, however, once it recognized the few people who were informally in touch with colleagues in other offices and gave them incentives to do more of this. A network analysis was conducted to formally identify these boundary spanners, and they were increasingly assigned to projects that would require them to travel to offices on all three continents. As a result, the spanners developed larger and more reliable personal networks all over the

> Executives typically assume that it is a bad idea for anyone to be a peripheral specialist, and they often take great pains to socialize these people. That can be an expensive mistake.

world. Since the firm was making additional demands on them, the senior partners awarded the boundary spanners generous salary increases as well as quicker promotions. A follow-up network analysis that we conducted a year later showed that many of the groups in the firm were, indeed, much more integrated. New projects were won and old contracts were extended, partly because people were able to get the knowledge or expertise they needed from their far-flung colleagues more easily.

The Information Broker

In large informal networks, you may find people who connect the various subnetworks in the company. Without these information brokers, the network as a whole wouldn't exist. For instance, remove Joe from the exhibit "Identifying Information Brokers" and you no longer have one large informal network but rather three smaller, more tightly knit groups that are quite isolated from one another. Information brokers play a role similar to that of boundary spanners, only they do it within the social network.

Information brokers are disproportionately important to the informal network's effectiveness because they wield the power of a central connector without necessarily possessing the number of direct links that connectors have. In fact, they are characterized by a wealth of indirect connections. (In the exhibit, Joe is connected directly or by two degrees of separation to more than 20 people in the network.) Information brokers play such a critical role that organizations often try to manage large informal networks through them.

At one electronics company, for example, we identified eight information brokers in a community of practice of 120 people. Senior managers were so impressed by the brokers' efforts that they decided to reinforce their work by making them, their expertise, and the roles they played explicit to the whole group. The information brokers were allowed to spend 20% of their time supporting the network and were officially designated as the go-to people in their areas of expertise – electronics and various kinds of engineering. The information brokers stayed in touch with one another through bimonthly conference calls and frequent on-line chat forums, and senior managers provided collaboration software that helped them stay abreast of who knew (or was doing) what in the informal network. When the analysis was originally conducted, the members of the work community were, on average, four removes from one another. After the interventions, almost all the employees were only two links from one another – a degree of connectivity that

Identifying Information Brokers

Joe holds the various parts of this large informal network together. He may not have as many direct connections with colleagues as the central connectors in the network do, but he has a wealth of indirect associations. If Joe were removed, this large informal network would splinter into three smaller, disjointed subnetworks. Joe is the information broker.
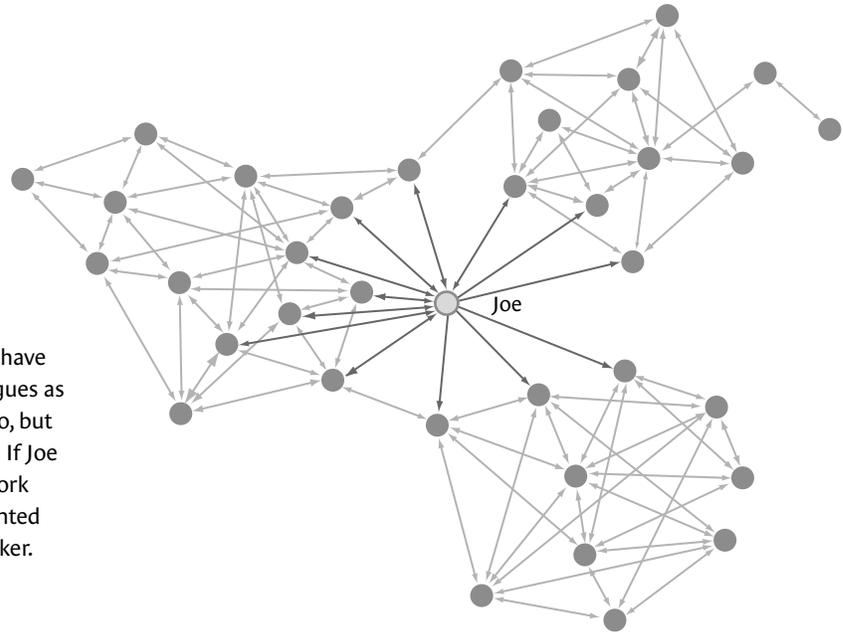
greatly improved information sharing in the group. Thus, the organization ensured, with minimal investment, that the members of this community could leverage their collective expertise more easily and effectively.

There is, however, a degree of danger in relying too much on information brokers, whose departure could tear apart an informal network. Executives should, therefore, encourage central connectors to develop more connections with subgroups they are not adequately linked with. That way, if the need arises, a connector could take over an information broker's role in the network.

The Peripheral Specialist

Large or small, every informal network has its outsiders. Although they operate on the periphery, these people play a vital role in the network by serving as experts. They possess specific kinds of information or technical knowledge – for instance, research data, or software skills, or customer preferences – that they pass on to the other members of the group whenever it is needed. Executives typically assume that it is a bad idea for anyone to be a peripheral specialist, and they often take great pains to socialize these people. If their efforts fail, they may even conclude that such people are expendable. That can be an expensive mistake.

To be sure, many peripheral specialists could contribute more if they were tightly integrated in the informal network. In fact, many people on the periphery are new hires who are desperately trying to get better connected. But the peripheral specialists are intentionally on the edge of a network. They might be loners who do not

like to work too closely with the rest of the group or people who have to invest a lot of time outside the network to stay on the cutting edge. (For a depiction of peripheral specialists' place in the network, see the exhibit "Finding Central Connectors and Peripheral Specialists.") Integrating peripheral specialists may distract them from staying ahead in their fields; they can't stay on top of what they want to do if they are forced to sit on committees. And these frustrated specialists are likely to take their skills to a more accommodating employer.

Consider one high-tech company we worked with. Several of its leading researchers were threatening to resign. Senior management was blindsided by this news because the team had been extremely successful at developing new technologies and introducing them to the rest of the company, and their work had been handsomely rewarded and recognized. But a social network analysis showed that the organization was destroying the group because it did not recognize that most of the scientists were peripheral specialists. As the researchers came up with winning applications, senior managers started asking them to attend more internal meetings and to present their findings to large customers. As their successes increased, the demands on the researchers' time increased to such a level that they felt unable to stay at the cutting edge of their areas of expertise, let alone advance them.

In other cases, people operate on the outer fringes of a network for personal reasons. They might, for instance, be the primary caregivers in their families. If the company subtly forces these people into more activities – such as early morning conference calls, late evening meetings, and increased travel – they will resent having to participate

and may eventually quit. Executives who value the expertise of people in these situations need to be extremely sensitive to the demands placed on them and respect the desire of such people to play only a peripheral role in the informal network.

Personal Network Management

Up to this point, we have presented social network analysis as a tool for viewing groups of people. But an equally powerful way to promote connectivity in the organization is to give employees customized views of their personal networks. Through social network analysis, people can identify where they need to build more or better relationships, and senior executives can coach them appropriately: Is all the manager's information coming from people above him rather than below him? Does his network include only those people who work on the same floor? Is he missing feedback from people with different perspectives?

Many characteristics can be used to analyze managers' social networks–education, gender, and age among them. But we have found that a focus on four dimensions can help managers improve their connections. The first is the extent to which managers seek out people within or outside of their functional areas. Second is the degree to which hierarchy, tenure, and location matter to the managers' social relationships. Third is the length of time managers have known their connections. And fourth is the extent to which managers' personal networks are the result of interactions that are built into their schedules (such as planned meetings) rather than ad hoc encounters in the hallways.

Letting employees get a closer look at their personal networks can help them uncover all kinds of weaknesses. For instance, we conducted a social network analysis of the information flows among the senior executives in the Americas division of a major technology company. We focused on the way information flowed among the nine senior managers and the next layer down in the organization (a group of 54 executives). In addition to assessing the effectiveness of the group, we analyzed each of the top leaders' personal networks. (This can be a particularly important exercise for senior executives, since a significant part of their jobs is to make effective decisions, and most of the information they rely on comes from people in their networks.) Let's consider two of those top nine executives, Neil and Dave, who both had significant responsibilities throughout the division.

Dave's network was smaller than Neil's, both in terms of the number of people seeking information from them (ten people for Dave, 14 for Neil) as well as the number of people they sought out for information (14 people for

> Through social network analysis, people can identify where they need to build more or better relationships.

Dave, 21 for Neil). But the difference in the sizes of their networks was not as revealing as the difference in the composition of their networks. Dave tended to acquire information almost exclusively from those in his functional area; of his ten informal contacts, nine were from his department. By contrast, eight of Neil's 14 informal contacts were members of his department, and six worked in different functional areas. Although we couldn't definitively say that Dave would have had a more adaptable network if he had forged relationships with people from a greater number of functional units, we felt it important to make him aware of this potential bias which was likely to affect both his ability to learn and his decision making. Other aspects of Dave's network also suggested rigidity. For example, he tended to turn only to people he had known for a long time or had met because they were structured into his schedule. As a result, Dave had much less exposure to new concepts or information than Neil did.

Dave was initially surprised to find that there were such biases inherent in his personal network. But he admitted there had been instances when decisions he had made or actions he had taken had caused problems because he had not considered other perspectives. Through his own initiative, and with the help of a coaching program that senior management established, Dave set out to systematically identify and nurture the relationships he had underinvested in and to decrease his reliance on relationships he had overinvested in, thereby strengthening his personal network.

• • •

Because informal networks are not, by their very nature, part of the official hierarchy, they are often starved of resources – and the right kind of management attention. Indeed, many organizations cling to the outdated notion that as long as they indirectly create the right context – more off-sites, more company picnics, and more coffee machines in the hallways – informal networks will flourish. That is simply not enough. Social networks cannot be aligned with organizational goals through those kinds of random interventions. It is only after executives openly and systematically start working with informal networks that the groups will become more effective.

Moreover, we have found that people with strong personal networks–such as the key role-players–are more satisfied in their jobs and stay longer at their companies than employees with weak networks. Thus, working with the role-players to improve their effectiveness will not only boost productivity but will also help executives retain the people who really make their organizations tick. ▽